SOUTHWEST FISHERIES SCIENCE CENTER
SECOND QUARTER REPORT-FY 001
For the Period January 1, 2001-March 31, 2001

SUBMITTED BY: John Hunter, Director, Fisheries Resources Division

Title of Accomplishment or Milestone: Cowcod Rebuilding Plan

Current Status of Accomplishment or Milestone: The rebuilding analysis was completed in June 2000. It was reviewed by the Scientific and Statistical Committee in August 2000 and adopted by the Pacific Fishery Management Council (PFMC) in December 2000.

Background: The cow rockfish or cowcod, *Sebastes levis*, was common off southern and central California. Adult cowcod may live to more than 50 years and are usually associated with rocky outcrops at depths of 152-244 m. Cowcod have been a target of both recreational and commercial fishers off Southern California since World War II. The 1999 stock assessment of cowcod determined that the biomass in the INPFC Conception Area had fallen below 10% of its unfished size. The PFMC declared the stock over-fished in 2000. Under terms of the Magnuson-Stevens Fishery Management Act of 1976 all overfished stocks must be rebuilt to sustainable levels.

Purpose of Activity: In accordance with the protocols of the national standards, the Fisheries Resources Division undertook a rebuilding analysis to provide management guidelines that would rebuild cowcod to sustainable levels (40% of initial population).

Description of Accomplishment and Significant Results: The cowcod population was modeled using a surplus production model that incorporated density dependent recruitment. Parameters used in the model were derived from the stock assessment of cowcod (Butler et al. 1999). Preliminary analysis indicated that the cowcod population would not rebuild within 10 years. Under those circumstances the national guidelines dictate that rebuilding must occur within the length of time to rebuild with no fishing plus one mean generation.

The minimum time to rebuild with no fishing was 61 years. Cowcod live to a maximum age of about 75 years, and the mean generation time is about 37 years. Thus, the rebuilding of the cowcod population will take approximately 98 years. Total removals must not exceed 2.4 mt per annum during the next decade. The combination of an unproductive stock and extremely low current biomass levels compound the difficulty of rebuilding the population.

Significance of Accomplishment (e.g., to the Center, to Management, and to NMFS Strategic Plan Goals): In order to achieve rebuilding the PFMC prohibited the take of cowcod and established a Cowcod Conservation Area (CCA) of 4300 sq. mi. in the Southern California Bight. The CCA was necessary to enable the population to

recover because adult cowcod have a large swimbladder and live at depths of 150-300 m, no cowcod brought to the surface can be released alive. No bottom fishing is allowed below 35 m and no trawling is allowed at any depth.

Problems: None

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